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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
HOLMES, MICHAEL B	

ART UNIT	PAPER NUMBER
2121	

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/018,661	BAINA ET AL.	
	Examiner	Art Unit	
	Michael B. Holmes	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *(3)* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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Examiner's Detailed Office Action

Response to Amendment

1. This Office Action is responsive to communication received on October 28, 2005.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. The invention as disclosed in claims 1-6 are rejected under 35 U.S.C. 101 as being non-statutory subject matter. While applicant's invention is directed towards technological arts. Applicant's claim language is not limited to practical applications. In particular, examiner has found the claimed subject matter, to be one of three exclusions recognized, outside the statutory category of invention, an abstract idea. Examiner contends that applicant's invention as claimed relates a computational model or a mathematical manipulation of a function or equation, as such, a process that merely manipulates an abstract idea or performs a purely mathematical algorithm

is nonstatutory despite the fact that it might inherently have some usefulness. In Sarkar, 588 F.2d at 1335, 200 USPQ at 139, the court explained why this approach must be followed:

> No mathematical equation can be used, as a practical matter, without establishing and substituting values for the variables expressed therein. Substitution of values dictated by the formula has thus been viewed as a form of mathematical step. If the steps of gathering and substituting values were alone sufficient, every mathematical equation, formula, or algorithm having any practical use would be per se subject to patenting as a "process" under 101. Consideration of whether the substitution of specific values is enough to convert the disembodied ideas present in the formula into an embodiment of those ideas, or into an application of the formula, is foreclosed by the current state of the law.

4. Furthermore, for such subject matter to be statutory, the claimed process must be limited to a practical application of the abstract idea or mathematical algorithm in the technological arts. *See* Alappat, 33 F.3d at 1543, 31 USPQ2d at 1556-57 (quoting Diamond v. Diehr, 450 U.S. at 192, 209 USPQ at 10). *See* also Alappat 33 F.3d at 1569, 31 USPQ2d at 1578-79 (Newman, J., concurring) ("unpatentability of the principle does not defeat patentability of its practical applications") (citing O 'Reilly v. Morse, 56 U.S. (15 How.) at 114-19). A claim is limited to a practical application when the method or system, as claimed, produces a concrete, tangible and useful result; i.e., the method recites a step or act of producing something that is concrete, tangible and useful. *See* AT &T, 172 F.3d at 1358, 50 USPQ2d at 1452. *See* MPEP § 2106(IV) Applicant is advised to make the appropriate corrections in an attempt to gain patentability. The claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." *State Street*, 149 F.3d at 1373, 47 USPQ2d at 1601-02. Remember, the claims define the property rights provided by a patent, and thus require careful scrutiny. Therefore, it is not enough to set forth invention in the specification. The claims must also reflect the scope and breath of applicant's invention. The mere classi-

fication of a signal is nothing more than an abstract manipulation of data without any tangible real world results.

5. Therefore, claims 1-6 are rejected under 35 USC § 101.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Quincy et al.* "Expert Pattern Recognition Method for Technology-Independent Classification of Video," IEEE, 1988,

in view of

Quincy et al. "Speech Quality Assessment Using Expert Pattern Recognition Techniques," IEEE, 1989.

Regarding claim 1. *Quincy et al.* "Expert Pattern Recognition Method for Technology-Independent Classification of Video," describes a method of evaluating an audiovisual [*see* Background "*It offers a solution to evaluation of codes for digital broadcast TV and video conferencing, hence "audiovisual" in accordance with its dictionary meaning relating to or being any materiel that uses a combination of sight and sound to present information*] sequence the method being characterized in that it implements:

a) training, comprising allocating a subjective score NS(i) to each of N(0) training sequences Si (where i = 1, 2, ..., N.) presenting degradations identified by a training vector MO(i) which is given to each sequence S(i) in application of a first vectorizing method, in order to build up a database of N(0) training vectors M0(j) including only said identified degradations and subjective scores NS(j) [*see* Abstract, B. Proposed Solution, page 1304-1305 & C. Statistical Pattern Recognition Classifier Module, page 1306];

b) classifying the N(0) training vectors MO(i) into k classes of scores as a function of the subjective scores NS(1), that have been allocated to them, so as to form k training sets EA(j) (where j = 1, 2, , k) which have k significant training scores NSR(j) allocated thereto [*see* Abstract, B. Proposed Solution, page 1304-1305 & C. Statistical Pattern Recognition Classifier Module, page 1306];

c) for each visual sequence (*see* A. Background, page 1304, *Examiner interprets the reference to the Specialized Video and Audio Services, as the audiovisual component. Moreover, similar processing applied to one may be applied to the other, is known to one of ordinary skill in the art*) to be evaluated, generating a vector MO using said first vectorization method [*see* B. Objective Parameter Selection, page 1305 & C. Statistical Pattern Recognition Classifier Module, page 1306]; and

d) allocating to the visual sequence (*see* A. Background, page 1304, *Examiner interprets the reference to the Specialized Video and Audio Services, as the audiovisual component. Moreover, similar processing applied to one may be applied to the other, is known to one of ordinary skill in the art*) for evaluation the significant training score NSR(j) that corresponds to the training set Ea(j) containing the vector that is closest to the vector MO in the sense of vector

quantification [*see* B. Objective Parameter Selection, page 1305 & C. Statistical Pattern Recognition Classifier Module, page 1306].

Quincy et al. "Expert Pattern Recognition Method for Technology-Independent Classification of Video, does not explicitly describe a method of evaluating a audio sequence."

However, *Quincy et al.* "Speech Quality Assessment Using Expert Pattern Recognition Techniques, explicitly describes a method of evaluating a audio sequence."

Regarding claim 1. *Quincy et al.* "Speech Quality Assessment Using Expert Pattern Recognition Techniques, describes a method of evaluating a audio sequence" describes a method of evaluating an audio sequence the method being characterized in that it implements:

a) training, comprising allocating a subjective score NS(i) to each of N(0) training sequences Si (where i = 1, 2, ..., N.) presenting degradations identified by a training vector MO(i) which is given to each sequence S(i) in application of a first vectorizing method, in order to build up a database of N(0) training vectors M0(j) including only said identified degradations and subjective scores NS(j) [*see* System Overview, page 208];

b) classifying the N(0) training vectors MO(i) into k classes of scores as a function of the subjective scores NS(1), that have been allocated to them, so as to form k training sets EA(j) (where j = 1, 2, , k) which have k significant training scores NSR(j) allocated thereto [*see* Distortion Probability, page 209];

c) for each audio sequence to be evaluated, generating a vector MO using said first vectorization method [*see* Abstract, page 208]; and

d) allocating to the audio sequence for evaluation the significant training score NSR(j) that corresponds to the training set Ea(j) containing the vector that is closest to the vector MO in the sense of vector quantification [*see* Distortion Probability & Expert System, pager 209]. It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Quincy et al.* "Expert Pattern Recognition Method for Technology-Independent Classification of Video," with *Quincy et al.* "Speech Quality Assessment Using Expert Pattern Recognition Techniques," because automatic assessment of voice transmission quality is increasingly important to users and providers of communication services and products [*see* Abstract].

Regarding claim 2. *Quincy et al.* "Expert Pattern Recognition Method for Technology-Independent Classification of Video," describes a method according to claim 1, characterized in that it comprises: between steps b) and c): b1) for each training set EA(j), using a second vectorization method to generate by vector quantification a reference dictionary (*Examiner interprets a* dictionary *to be a list e.g., items of data or words stored on a computer (database) for reference i.e., for information retrieval or word processing*) D(j) made up of N(j) reference vectors VR(1) (where 1 = 1, 2 , . . , NJ) [*see* Fig. 1 & Fig 2; B. Objective Parameter Selection, page 1305 & C. Statistical Pattern Recognition Classifier Module, page 1306]; and between steps c) and d): c1) selecting amongst the reference vectors VR(1) of the k reference dictionaries, the reference vector VR(e) which is closest to said vector MO [*see* Fig. 1 & Fig 2; B. Objective Parameter Selection, page 1305 & C. Statistical Pattern Recognition Classifier Module, page 1306]; and in that step d) allocates to the audiovisual (*Examiner interprets the obvious teaching*

of the audio portion by the Quincy et al. "Speech Quality Assessment Using Expert Pattern Recognition Techniques," reference) sequence for evaluation the significant training score NSR(J) corresponding to the reference dictionary containing said closest reference vector Vr(I) [*see* Fig. 1 & Fig 2; B. Objective Parameter Selection, page 1305 & C. Statistical Pattern Recognition Classifier Module, page 1306].

Regarding claim 3. *Quincy et al.* "Speech Quality Assessment Using Expert Pattern Recognition Techniques," IEEE, 1989, teaches a method according to claim 1 or claim 2, characterizing in that the significant training scores NSR(j) are distributed in uniform manner along the score scale [*see* Fig. 5, page 211, & page 210].

Regarding claim 4. *Quincy et al.* "Expert Pattern Recognition Method for Technology-Independent Classification of Video," describes a method according to claim 1, characterized in that the significant training scores NSR.(j) of at least some (*Examiner interprets* some *to be an unknown, undetermined, or unspecified unit or thing; being one, a part, or an unspecified number of something e.g., as a class or group, named or implied. Therefore, examiner interprets at least "one" as the number of reference dictionaries*) of the k reference dictionaries are distributed in non-uniform manner along the score scale [*see* III. Research and Development Steps, page 1306].

Regarding claim 5. *Quincy et al.* "Speech Quality Assessment Using Expert Pattern Recognition Techniques," IEEE, 1989, teaches the method according to claim 4 or claim 5, characterized in

that said distribution is such that at least some of the reference dictionaries [*It is the position of the examiner that a database satisfies the dictionary definition of* "dictionary" *in accordance with its dictionary definition a list (as of items or data or words) stored on a computer for reference (as for information retrieval or word processing)* contain substantially the same numbers of references vectors [*see* System Overview, page 208, "*200 candidates*"].

Regarding claim 6. *Quincy et al.* "Speech Quality Assessment Using Expert Pattern Recognition Techniques," IEEE, 1989, teaches the method according to claim 4 or claim 5, characterized in that it comprises, between step a) and b), identifying k significant training scores NSR(j) from subjective scores NS(i) each considered as a one-dimensional vector, by finding the minimum distance between the set of the N(0) subjective scores NS(12) and the k significant training scores [*see* Background & System Overview, page 208 "*subjective scores*" Classification and Mean Opinion Score Prediction & Fig. 3, page 209 & 210].

Response to Argument(s)

8. With regards to the creation of a database, see *Quincy et al.* Fig. 1 & Fig. 2. Moreover, *Quincy et al.* offers a solution to evaluation of codes for digital broadcast TV (*audiovisual*) and Video conferencing (*audiovisual*) as well as high definition TV (HDTV) and high resolution graphics. It should be noted that the type of signal processed is not of patentable significance. Persons of ordinary skill in the art of one type of signal processing are aware of and utilize the same techniques in processing the other types of signals. See for instance, *Quincy et al.* . "Expert Pattern Recognition Method for Technology-Independent Classification of Video Transmission

AS 1/20/04

Quality," References [2], [3], and [5], which are all related to audio processing.

Examiners Summary

9. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

10. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence Information

11. Any inquires concerning this communication or earlier communications from the examiner should be directed to Michael B. Holmes, who may be reached Monday through Friday, between 8:00 a.m. and 5:00 p.m. EST. or via telephone at (571) 272-3686 or facsimile transmission (571) 273-3686 or email Michael.holmesb@uspto.gov.

If you need to send an Official facsimile transmission, please send it to (703) 746-7239.

If attempts to reach the examiner are unsuccessful the Examiner's Supervisor, Anthony

Knight, may be reached at (571) 272-3687.

Hand-delivered responses should be delivered to the Receptionist @ (Customer Service Window Randolph Building 401 Dulany Street Alexandria, VA 22313), located on the first floor of the south side of the Randolph Building.

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Monday, January 09, 2006

MBH